REMARKS

Claims 1 – 60 are pending in the application. Claims 1, 11, 14-17, 19-20, 22, 29, 38, 40-42, 44-45, 47-48, 50-51 are hereby amended. Claims 12-13, 18, 39, 43 are hereby canceled without prejudice. New claims 61-63 are hereby added.

Declaration Traversing Rejections, 37 CFR 1.132

The Examiner states that the Declaration under 37 CFR 1.132 filed Feb. 28, 2007 is insufficient to overcome the rejection of claims 1-60 based on the **Ben-Gal** reference because no evidence was provided.

A declaration by Applicants that co-inventor, Gonen Zinger was a contributor to the research described in the above article, and evidence in support thereof, is hereby provided. Applicants respectfully believe that the enclosed declaration and the documents provided present a substantial and sufficient body of evidence to show that Gonen Zinger was an active contributor to the research described in the **Ben-Gal** reference.

The evidence provided with the declaration shows that Gonen Zinger was a research assistant for the CONSIST Consortium, under the direction of Dr. Irad Ben-Gal of Tel Aviv University and Dr. Armin Shmilovici of Ben-Gurion University. Attachment A is a research proposal directed to the Chief Scientist of the Ministry of Industry, Trade and Labor of the State of Israel describes the research to be performed by the CONSIST Consortium, in the research subject disclosed in the **Ben-Gal** reference. Attachment B shows that Gonen Zinger was approved for employment by the CONSIST Consortium. Attachment C is a timesheet which shows that Gonen Zinger was actively employed by the CONSIST Consortium. Attachment D shows research items which were allocated to Gonen Zinger in July 28, 1999. The results of his work in several of these items are found in the **Ben-Gal** reference. Attachments E-G are further evidence that Gonen Zinger was a researcher under the guidance of Dr. Irad Ben-Gal in the research subject disclosed in the **Ben-Gal** reference.

In light of the enclosed declaration, and the evidence presented therewith, Applicants respectfully state that the inventors of the present patent application and the authors of the cited reference form a single inventive entity.

The Applicants therefore assert that the **Ben-Gal** reference does not serve as a basis for rejection under *35 USC §102* and *35 USC §103*.

Favorable reconsideration of this rejection in view of the enclosed declaration is respectfully requested.

Claim Objections

Claim 19 is amended herein to replace the phrase "so to determine" with "so as to determine" to thereby overcome the objection.

Claim Rejections – 35 USC §101

The Examiner rejected claims 1-14, 19-40 and 44-60 under 35 USC 101, as directed to non-statutory subject matter. The Examiner states that the claims attempt to patent every "substantial practical application" of an idea.

Applicants hereby amend independent claims 1, 19 and 50 to list the types of data sequences which may be modeled. The listing bounds the applications which are encompassed by the claimed invention.

Claim 1, as amended, states:

> 1. Apparatus embodied in a computer for building a stochastic model of a data sequence, said data sequence comprising time related symbols selected from a finite symbol set, the apparatus comprising:
>
> an input configured for receiving said data sequence, wherein said data sequence describes ongoing states of an observed process,
>
> a tree builder, configured for expressing said data sequence as a stochastic model, said stochastic model comprising said symbols as a series of counters within nodes, each node having a counter for each symbol, each node having a position within said tree, said position expressing a symbol sequence and each counter indicating a number of its corresponding symbol which follows a symbol sequence of its respective node,
>
> a tree reducer, configured for reducing said tree to an irreducible set of conditional probabilities of relationships between symbols in said input data sequence, and
>
> a comparator configured for comparing said reduced tree with a reference tree obtained in advance of said receiving sequential data so as to determine whether there has been a statistical change between said two trees, and for outputting a result of said comparing,

> *wherein said data sequence is selected from a group consisting of: a manufacturing process output data sequence, a cyclic operating machine data sequence, a buffer level data sequence, a seismological data sequence, a medical sensor output data sequence, a sequence of financial data, a sequence of records arriving at a database, and an image data sequence.* (Emphasis added)

Similar language is included in amended claims 19 and 50.

All of the data sequences listed above possess the unifying property of being amenable to analysis of their statistical properties, and for the expression of their statistical properties by a probability model. Therefore these data sequences are appropriate for recitation as a Markush group.

Applicants respectfully believe that in light of the amendments to independent claims 1, 19 and 50, claims 1-63 are directed to statutory subject matter.

Favorable reconsideration of this rejection in view of the above amendments is respectfully requested.

Claim Rejections – 35 USC §102

Claims 1-24 and 30-57 are rejected under 35 USC 102 as being unpatentable over Ben-Gal et al. *An Information Theoretic Approach for Adaptive Monitoring of* Processes, presented at ASI2000, The Annual Conf. of ICIMS-NOE and IIMB. 2000 (hereinafter "**Ben-Gal**"). The Examiner states that the cited reference has a different inventive entity than the instant application.

Applicants confirm that the publication date of the **Ben-Gal** reference is September 18, 2000, which falls within the one year grace period (see "ASI Report" at http://www.lar.ee.upatras.gr/icims/asi/asi2000/report.htm)

Included is a declaration stating that co-inventor, Gonen Zinger, was a contributor to the research described in the above article, and that his name was omitted from the list of authors due only to the fact that he did not actively participate in writing the cited **Ben-Gal** reference.

In consequence, the inventors of the present patent application and the authors of the cited reference form a single inventive entity. Applicants therefore assert that the **Ben-Gal** reference does not serve as a basis for rejection under *35 USC 102*.

Favorable reconsideration of this rejection in view of the enclosed declaration is respectfully requested.

Claim amendments:

Applicants wish to bring the following amendments to the dependent claims to the Examiner's attention.

Claims 15 and 41 are hereby amended to claim that the data sequence contains seismological data, and that the comparison result is provided as a forecast of seismological activity provided. Support for the amendment is found *inter alia* in para. 261 of the instant specification.

Claims 16 and 42 are hereby amended to claim the data sequence contains medical sensor output data and that the apparatus is configured for monitoring a selected bodily function. Support for the amendment is found *inter alia* in para. 258 of the instant specification.

Claim 47 is hereby amended to claim that the data sequence contains financial data, and that the comparator provides the comparison result as a forecast of financial behavior. Support for the amendment is found *inter alia* in para. 261 of the instant specification.

Claim 48 is hereby amended to claim that the data sequence contains image data sequences, and that the comparator provides the comparison result as an identification of features of interest in the image data sequence. Support for the amendment is found *inter alia* in para. 259 of the instant specification.

Claim 50 is hereby amended to claim that the data sequence comprises a sequence of records arriving at a database, and that the comparator provides the comparison result as an identification of changes in a source generating the records. Support for the amendment is found *inter alia* in para. 262 of the instant specification.

Favorable reconsideration of this rejection in view of the enclosed declaration and the above discussion is respectfully requested.

Claim Rejections – 35 USC §103

Claim 25 was rejected under 35 USC 103(a) as being unpatentable over **Ben-Gal** in view of Naranjo et al. "Resampling Software for Analysis and Validation of

Enumerative and Binomial Sampling Plans." Undated. Printed Dec. 9, 2005. http://www.wcrl.are.usda.gov/software/rvspman.html.

Claims 26-29 were rejected under 35 USC 103(a) as being unpatentable over **Ben-Gal** in view of Weinberger et al. "A Universal Finite Memory Source", IEEE Transactions on Information Theory, May 1995, Vol. 41.

In light of the enclosed declaration, and as discussed above, Applicants respectfully believe that the **Ben-Gal** reference does not serve as a basis for rejection under *35 USC 103*.

Favorable reconsideration of this rejection in view of the enclosed declaration is respectfully requested.

New claims:

New claim 61 is hereby added. Claim 61 teaches that the comparison result output by the comparator is provided as a control chart. Support for claim 61 is provided *inter alia* in para. 105 of the instant specification which states:

> Finally, the embodiment creates a single control chart for a process to be monitored. The single chart is suited for decomposition if in-depth analysis is required to determine a source of deviation from control limits.

Examples of control charts are shown in Figs. 15-16.

New claim 62 is hereby added. Claim 62 teaches that the data sequence comprises a sequence of records arriving at a database, and that the comparator is configured for providing the comparison result as an identification of changes in a source generating the records. Support for claim 62 is provided *inter alia* in para. 262 of the instant specification which states:

> Considering a database with records that arrive at consecutive times, the algorithm, (when extended to multi-dimensions), may compare a sequence of records and decide whether they have similar statistical properties to the previous records in the database. The comparison can be used to detect changes in the characteristics of the source which generates the records in the database.

New claim 63 is hereby added. Claim 63 repeats the language of claim 50, with a dependency on claim 1.

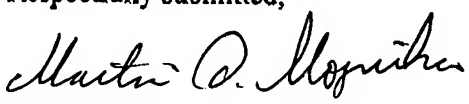
It is thus respectfully believed that claims 1-63 are both novel and inventive over the prior art.

All of the matters raised by the Examiner have been dealt with and are believed to have been overcome.

In view of the foregoing, it is respectfully submitted that all the claims now pending in the application are allowable over the cited reference. An early Notice of Allowance is therefore respectfully requested.

Applicants point out that the substance of the amendments to claim 1 was already present in dependent claims which were not rejected under 35 U.S.C. § 101, §102 or §103, other than over the paper of three of the inventors, which has been overcome by the declaration filed herewith. Applicants submit that if the Examiner rejects the independent claims in the next office action, this action should be a non-final action.

Respectfully submitted,



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Enclosures:

- Petition for Extension of Time (1 Month)
- Additional Claim Fee
- Executed Declaration as to Inventive Entities
- Attachments A-G